

Editorial JOURNAL BOX

EDITORIAL

Cardiac Intensive Care Unit
St George's Hospital
Kew Melbourne

What a wonderful address! Only temporary I hope. Apart from the tubes and wires connecting me to the monitor, I am having a very restful time, with some very wonderful people looking after me. As I need something to do to keep me from going batty (no smart comments please), I am glad there was most of this Journal pretyped. Helen is going to hate me for the bits I have to write out though - like this Editorial. I am sorry to hear that Helen has also had a bout in hospital. I hope all is well.

I noticed in a recent copy of AMRM some items about mail order problems. Would you believe it, but I have been caught the same way, despite supplying stamped addressed envelopes and photo copies of previous correspondence by one of the suppliers of brass Victorian locomotives. I hope I finally receive my \$385 painted locomotive, and perhaps even get an answer to my queries. That is going to cost them an extra 3 cents now - and may be that is why I can forget about it - if they cannot use my stamped and addressed envelope supplied, they certainly will not spend an extra 3 cents on a reply.

Although I get to read each Journal at least four times, I still manage to find some error I have missed when I get to read each issue as I pick it up from the printer. Not knowing exactly what Ken is going to use in each issue from the material I supply him, each Journal is as new to me as it is to you. This sometimes poses a problem as to what I can find to complement whatever I can remember Ken may be holding, and thus not have too much repetition in the same issue.

So how about it? We need your help. All you have to do is keep those articles and letters on many and varied subjects coming in, so that we have as big a choice as possible for each issue.

Remember, the copy deadline for the next issue is the 15th of each even month.

Rex Little
Editor

VOLUME 31

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THE SECRETARY'S DESK



FAMILY MEMBERSHIP Once more I will explain what it means. It covers the spouse or **STUDENT** child of a Senior Member, and not the whole family as some assume. The extra subscription rate is \$2 per member, as there could be more than one such member in a family.

We have received several applications for membership from a Senior, plus an extra \$2 for family with no indication as to who it should cover. Until we can find out, no badge or membership card can be forwarded. Just a little co-operation in this matter will make the Registrar's job a little easier.

One of our aims, to have Journal back to target, is well under way, and for this the production team is to be congratulated. Other matters in relation to the magazine have not yet been implemented, mainly the printing, but we hope this will be resolved before long.

Referring to Manfred Ebinger's letter in Pop Valve of Issue 145; I would point out that members have always been able to insert 'For Sale' or 'Wanted' advertisements in Journal FREE, but this has seldom been used in recent times. Perhaps the auctions held by the State Branches have something to do with this, but, of course, this does not help the country members. However, this does not prevent him from placing an advertisement in Journal. It would be strange if no other member was able to help him. It all gets down to lack of communication.

Talking of communication, I wonder if any member has contacted Geoff Perkins regarding Ttn3½, or Dave Bennet regarding N gauge clearances - both items appeared in Issue 144. Then there was Bruce Norton's query regarding Modular Systems. I do know that no one has shown any interest in the

Members' Information Files.

There have been suggestions that the Federal Constitution needs updating; perhaps some of you may have some constructive suggestions. Please let us hear from you.

With so many kits on the market these days, one would expect to see some comments, bricks or bouquets, from our members in Journal. One can only assume that either everyone is quite happy with everything, or if someone has purchased an 'XWZ kit' and with imagineering converted it to a 'JKL' vehicle, is not prepared to share the method with others, either by a description or a photo. Do not let the matter of not being a draftsman deter you. A rough sketch with sufficient explanation will do, as we have members available who can polish it up.

I must welcome Frank Sheeran to the Publishing Committee. Frank has opted to be Advertising Manager. One of our aims in reverting to bi-monthly issues, and hopefully regular production, is to try and gain some advertisers, particularly in States other than our regular Victorian stalwarts. Our advertising rates will shortly be reviewed as there has been no change in 14 years and our costs have somewhat increased in that time.

There is a Model Railway Club formed to serve the areas Cheltenham/Moorabbin, Mordialloc/Aspendale. Contact President G J Veldwyk, 35 Brampton Street, Cheltenham, Vic 3192, for further information.

Those of you who studied the balance sheet in Issue 146 will have seen that there was a mistake in the Bank account. The amount shown as \$446.17 should have been \$650.76.

With regard to Terry Paton's letter on modules in Pop Valve, Issue 146,

Federal Committee believe that with such a matter as establishing standards for same, it is practically impossible to set a deadline. So many ideas look OK on paper, but do not stand up to practical handling. The old story of better to be sure than sorry.

I was sorry to read Eric Watson's letter in Pop Valve. Eric has been a consistent contributor to Journal over the years, and it is unfortunate that there is the type of person around in the hobby who would cause Eric to write such a letter.

It is hard to know why some people seem to derive pleasure from decrying

the efforts of others, and, indeed in some cases, vandalising where possible. We read of cases where some modellers suffer from what can only be called planned burglary. Insurance of equipment may cover some of the loss, but in many cases the items are irreplaceable.

It is coming to a sorry state when one has to become rather choosy in having visitors to view our layout or equipment.

Times are certainly changing.

Norm Read
Federal Secretary

Working Semaphore Signals In 4mm Scale : PART TWO

by Ted Thoday

The original article in Journal No 142 left the way open for some further comment, particularly regarding the use of ratio plastic signal posts.

The bracket signal, mentioned in part 1, was changed slightly to perform a different function to that quoted. It now controls the entrance to Elswear Station and the goods loop, the reason for this was to prove a further stage in my 'interlocking' requirements, the signal operating power supply is routed through four section switches and two point motors so that the signal will not come 'off' unless the route is correctly set and the points have thrown, and the traction supply is correctly set for the direction of travel.

The ratio posts have now been in use for over twelve months, without any problems at all, so they are thoroughly recommended for any one wishing to try this system.

The original home and distant signal, which were the subject of part 1, have caused me some concern. This is mainly annoyance at the 'buzzing' of the relays

used to operate the signals, and so I had been looking round for an alternative that would also allow the signals to drop in a more prototypical manner than the snap action of the relays.

About this time in the clubrooms there appeared a number of ex-Telecom eyeball indicator solenoids. I, and several others, were idly fiddling with these one evening when it occurred to me that the circular motion of the eyeball flap could very easily be converted to a vertical motion, just what I needed, and certainly worth investigating further. So, a couple of these were taken home, and in due time were set to work operating the two signals on the bracket.

The solenoids are designed to operate in Telecom service from 50 V, d.c. I found that they would operate very well for my purposes on 24 V, d.c.

The modifications are very simple; first the 'eyeball' is removed by sawing through the arms about 5-6 mm from the centre pivot. Second, drill and tap a 10 Ba hole in one of the 5-6 mm pieces

remaining from the first step.

Take a piece of brass, or nickle silver, about 3 mm x 10 mm x 1 mm will do, the size is not critical, drill one end 10 Ba clear and the other end drill for a push fit for a suitable piece of NS wire. Attach this to the pivot with a 10 Ba bolt and apply a touch of cyano-acrylate adhesive to the bolt end only.

Cut a piece off a large diameter iron nail (about 20 mm Long) and fix this to the pivot part which is closest to the solenoid end with an epoxy type of adhesive such as quick setting Araldite. This piece of iron serves two functions; it increases the amount of magnetic attraction available, and also adds useful weight to help bring the signals back to the 'on' position when the power is turned off.

Solder a length of NS wire to the pivot piece in the hole already drilled. The length of this wire to be sufficient

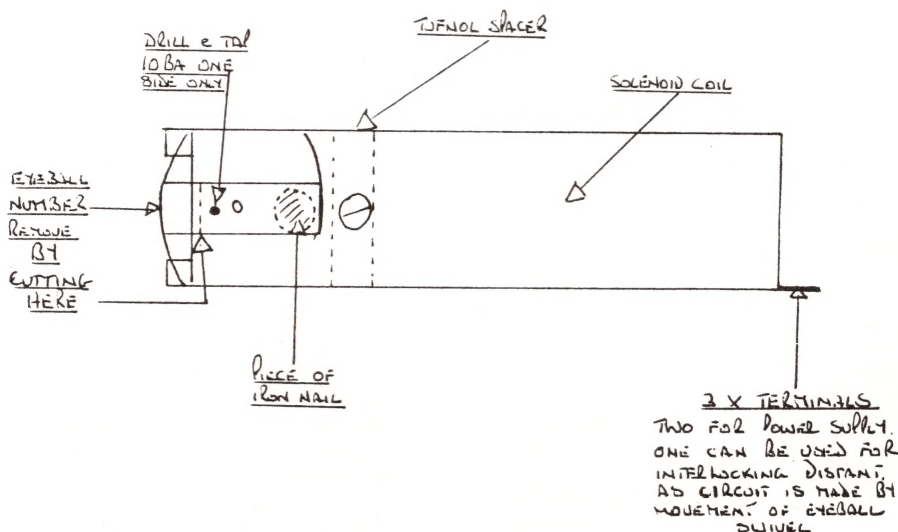
to pass through the baseboard and reach the signal balance arm, plus a few millimetres.

Make a 'U' shaped cradle to fit round the girth of the solenoid and drill the ends to accept suitable screws to fix to the underside of the baseboard. Conduit clips could also be used for this purpose if you have them handy or can't be bothered making them.

Drill a hole through the baseboard adjacent to the signal post, 2-3 mm will be sufficient.

Mount the solenoid under the baseboard, with the wire up through the hole. Use a peg to clip the pivot piece in the 'power on' position, put your signal arm in the 'off' position, approx 60° up or down from the horizontal, depending on whether you use upper or lower quadrant signals. Bend the end of the wire to pass through the balance weight arm.

Wire the solenoid to the switches



EYEBALL INDICATOR SOLENOID - MODIFICATIONS FOR
SEMAPHORE SIGNAL OPERATION

TT 64-82

and connect power; it should now work.

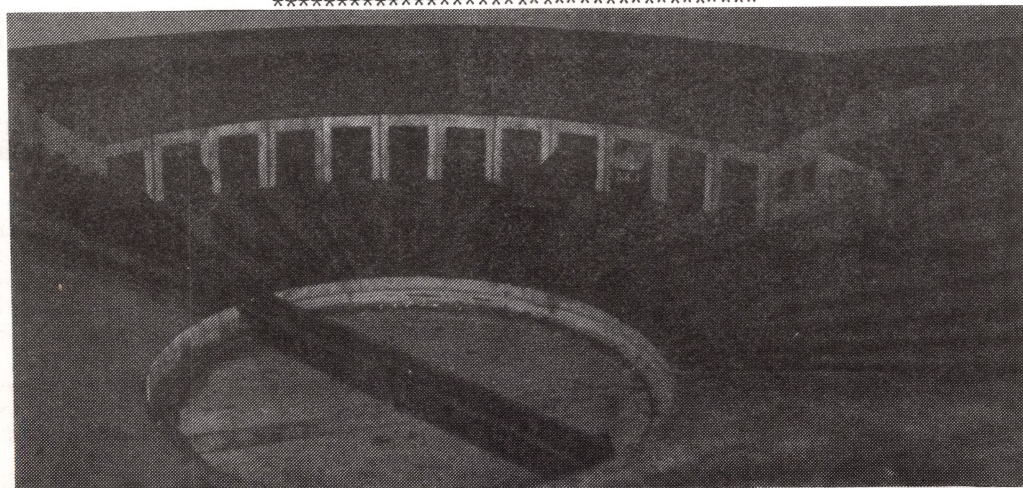
If the linkages are too tight for the signal to come back to the 'on' position when the power is off, it may be necessary to add a bit more weight to the pivot on the solenoid. This is quite easy to do; fix a piece of wire to the pivot and add small metal washers until you are satisfied. A drop of WD40 will also assist if put sparingly on all the bearing surfaces.

In the original signals I constructed the signal illumination was with grain of rice bulbs in turned brass lamp housings. I was a little concerned that the heat transference might distort the plastic used in the ratio posts. The method I've used with the current signals is to mount the G.O.R. bulb in a small platform attached to the post. The base of the bulb being in the platform, the remainder of the bulb is coated with a thick black paint is thoroughly dry, scrape the paint to form small apertures, one front and one back of the bulb. The front being larger than the back. Although the shape of the G.O.R. bulb is not the same as the prototype lamp housing, in this scale it is only noticeable if you know and go looking for it.

Hopefully the diagram will make things a little clearer.

Since writing the first part of this article, a considerable number of new signal parts have come onto the market. They are manufactured and marketed by Derek Mundy of 'Sprat and Winkle Lines' fame. From what I have read in the English magazines, and in the EM Gauge Society Manual, these are superb. The range covers signal parts, signal posts and gantry parts, finials, lamps and ground signals, amongst other things. These parts cover most of the major UK railway companies' usage and some at least could be used for the Australian prototype. Needless to say a selection is on order. Well worth sending for the leaflet.

What's next - well Paul Kehoe and I have put our heads together, with help from the boffins he works with, to sort out an inexpensive and reliable method of indicating track occupancy for the signal box diagrams. So far we've proved that the basic idea works now we have to fine tune it and prove it will work consistently under operating conditions. With the Editor's permission, we may even write it up later.



This scratch built 12 stall round house was entered by Tony Gray in the WA Branch's 1979 Modelling Competition.

WHAT'S IN A NAME

by Paul Kehoe

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What's in a name? No, you're wrong, this is not a learned dissertation on the naming of the layout, complete with expert testimony as to the need for accurate research to show why it should be so named.

It's not even a plea for layouts to bear names which might vaguely reflect their alleged geographical location.

Actually it's a reflection, perhaps a somewhat sad reflection, on the power that a name can have.

All of which seems a bit deep....so what's it all about?

Well, it begins in the FOR SALE columns of THE SUNDAY TIMES. No, not the one of world fame, but that erudite Western Australian publication which lands each Sunday on my front lawn with an ever increasing thud, leaving deeper and deeper depressions in the turf.

The READERS' MART is, probably, the main reason for the existence of this publication, and, amongst the myriad of ads selling furniture, bicycles, CB radios, and dubious 'massage parlour' services, is TRAINS.

NAMING

Mostly this is comprised of 'private' sales, the sort which reads:

Train set, HO, Lima, 2 loco,
3 coach, 2 point, cont. on
6x4 flash. et.xing, \$95.32 ONO
Collector's bargain!

but there are also advertisements from 'the trade'.

What ever it is that comprises 'the trade' I have always found to be a little elusive, but I suspect that it is generally regarded as being those establishments which cater specifically for the hobbyist.

The local 'toy' shop is disparagingly ignored, yet the local toy shop can, on occasion, prove to be a veritable

treasure trove.

Try wandering into a couple from time to time, you may well be surprised to discover just what is there, hidden away on a shelf at the back, or, even, on full and unsuspecting view right down at the front!

Any way, as I threw a bleary eye down the Readers' Mart columns this particular Sunday morning, my attention was arrested by an advert inserted by just one of these 'toy shops!'. This particular shop does not normally advertise in the 'trains' section, in fact, I've never seen an advert from the shop before.

There were a number of items being offered, but one lot in particular caught my eye. 4 mm rolling stock was being sacrificed at half price.

Now I'm one of those people who constantly displays jaundiced eyes. When I see 'half price' I immediately want to know 'half price of what price?'

But this cynical caution doesn't prevent my allowing the nose of the car to turn in the direction of the shop at the first available opportunity.

I'm also a sucker for a bargain! Putting on my best Humphrey Bogart poker face I sauntered into the shop and casually glanced over the displays. There were no signs proclaiming this 'half price' bonanza, but the rolling stock was displayed in all its glory, if, perhaps, a little self-consciously, almost as if it knew it was suddenly 'cheap'.

I paused, and bowed over to inspect it more closely. The effort was well worth it, for the merchandise was of the first quality.

A fateful hand inspection followed, fateful because the touch clinched the inevitable outcome.

I offered, out of the goodness of my bank manager, to remove from the storekeeper the onerous task of dusting off the stock by purchasing the lot!

Despite reservations as to my sanity (remember, toy shop..not hobby shop!), the storekeeper agreed, and I duly staggered from the shop clutching to my chest a large cardboard box filled to the brim with goodies.

And a couple of passenger coaches to boot.

Before so doing, however, and as the storekeeper dexteriously totted up the (even at half price!) alarming total, I casually put to him the one question curiosity could no longer contain, "Why? Why was he letting this magnificent equipment go at such a low price?"

Not, of course, that I was complaining! Far from it. I was, however, curious. His reply was disarmingly simple.

"Because" he said, "because they don't have Hornby on the side of the box."

And there, in that simple statement, lies perhaps one of the sadder elements of life today. A graphic illustration of the security blanket of familiarity.

Certainly those of us 'in the hobby' are aware of the ever-increasing range of items from a veritable plethora of manufacturers, but the average public is still conditioned by names which might well be merely commemorating past glories.

Hornby most certainly does not fit into that category, but it so easily could have done. Surely it is true that the present highly detailed standard of Hornby products has, in part at least, been brought about by healthy and vigorous competition, isn't it?

And thankfully so. To allow only one manufacturer to dictate movements within this hobby or that industry can so easily be the first step to acceptance of the same uniformity in the wider spectrum of life's activities.

I'm sure I don't have to spell out the consequences.

But the question remains - Why? Why was this particular storekeeper forced to relinquish his stock at the price he paid for it?

The items were well displayed, attractively packaged and competitively priced. It seems a great pity that, having been persuaded to acquire the stock, there was little apparent selling support from the manufacturer.

Indeed, a tour of the hobby shops of Perth suggests that this is not an isolated case. Whilst one is aware that Western Australia, with a population of only 2.15 million in an area 17 times larger than England and Wales, is hardly a selling paradise, there is a market and perhaps it should be exploited.

After all, this product really is first class and can't readily be faultedexcept by the nit-pickers who can find fault with everything. Alright, I can feel the frustration leaping through the atmosphere.....just whose equipment is it?

Ironically, and sadly, as I was cheerfully snapping up these bargains in the knowledge that one store, at least, would never have the product on its shelves again, the originator was shuffling off his mortal coil for greater and more certain rewards in another place.

His name?

T Graham Farish

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RED FOR DANGER

by Jack Makin

The sight of an express train speeding through the countryside is an inspiring one, and not only for the railway minded person; but how often do any of us stop to think of the regulations, the ingenious equipment and the ceaseless vigilance which makes a passenger train the safest form of transport in the world?

It is now nearly 20 years since I recommended to readers of Journal a little book called 'Red for Danger' by L T C Kolt, and published by Pan Books. After having recently re-read it for the umteenth time, I feel that I must again mention it for the benefit of the new generation of railway fans that has grown up in the meantime.

The book consists of descriptions of a number of railway accidents which occurred on the railways of Great Britain and Ireland over the period of 1840 to 1940; the accounts being taken from the records of the Railway Inspection Department of the Board of Trade, each account is followed by the findings of the Board of Trade Inspector, and his recommendation for the prevention of further occurrences of this kind.

The disasters described are not chosen for their horrific or dramatic value, but to illustrate the kind of thing which can happen as a result of bad operating principles, inadequate safety devices, mechanical break-down, or human error and weakness. In the course of the narrative the author is obliged to explain many of the principles and devices employed for safe working over the period.

It might be thought that such an account, based on official reports might make rather dry reading. Far from it! The very nature of the subject gives the writer many opportunities for some very fine dramatic writing, and makes his accounts more thrilling than any work of fiction.

And what has all this to do with model railways? Simply this: that any increase of knowledge of prototype principles must inevitably be reflected in the model layout, in the form of better operating practice, better choice and placement of signals, and better layout of yards, giving the whole a greater air of authenticity which must tend to impress the visiting professional, rather than to provoke his visible faculties.

The practices described in 'Red for Danger' are of course British and have little relevance to American or Continental working, but they are those on which Australian practice is mainly based, and the terms used and equipment described are such as are in common use on our own railways, while even the locomotive classes mentioned will be familiar to many of us. I have learned much from this little book, and hope that others may be able to do likewise.

WORKING in METAL

by Angström

List of Symbols

The following symbols and abbreviations are used in this article:

Al	Aluminium
Bi	Bismuth
C	Carbon
C#	Carbon in the form of Iron Carbide
Co	Cobalt
Cr	Chromium
Cu	Copper
Fe	Iron
Mn	Manganese
Ni	Nickel

P	Phosphorus
Pb	Lead
Sb	Antimony
Si	Silicon
Sn	Tin
V	Vanadium
W	Tungsten
Zn	Zinc

Introduction

For those of us who extensively scratch build, kit bash, or even just build the odd model railway item, the question of working in metal, and as to the best metal to use for a given job must occur. Often the best metal to use is not the obvious one, so it is the purpose of this article to list some of the more important properties of metals frequently encountered in this hobby, together with the author's opinions as to what use can be made of them. For those of us who are frightened by the thought of working in metal, perhaps the article will be of interest anyway.

Many of the metals listed are alloys, which means that they consist of a mixture of more than one metal, or are a mixture of at least one metal together with small quantities of other non-metallic elements. It must be appreciated that some alloys, such as stainless steel, come in an almost infinite variety of quite widely differing compositions and mechanical properties, and it would be completely beyond the bounds of this article to discuss even a small selection of them in detail. In such cases the variety listed is stated as typical.

The composition of all the metals listed is given at the start of each paragraph on the particular metal. The normal chemical symbols for the elements are used and the meaning of each symbol is listed at the beginning of the article.

Notes on Physical Properties

In order to understand some of the terminology used in this article, the following notes may be of assistance. Metric units are used throughout.

1 Density is the relative weight of the material.

2 Most metals containing copper become very much harder and stiffer when rolled into thin sheets, a process called 'work hardening'. Upon heating to red heat they become soft again, a process called 'annealing'.

3 Machinability is a measure of the amount of energy needed to cut metal while turning, milling, drilling, etc, while at the same time obtaining a fine finish.

4 Springiness is a measure of how much the metal can be deformed yet still spring back to its original shape when the deforming load is removed.

5 The ability of the metal to conduct heat and electricity is expressed as a percentage of the conductivity of heat and electricity of copper, since copper is the best of all common metals in both these respects.

6 Ferromagnetic is the ability of a material to transmit magnetic flux without becoming permanently magnetised.

Aluminium 100% Al

Aluminium is too soft and too weak to be much use in modelling. Also it cannot be soft soldered by normal means. However, paint and adhesives stick to it very well and it is easy to machine and bend. Therefore its light weight of 2.6 gm/cc makes it a good material for rolling stock superstructure where strength is of little importance.

Brass Sheet or Tube 67% Cu, 33% Zn (typical)

Brass has too high a conductivity of heat (27% Cu) to make it a good modelling material in sheet form. This high conductivity makes it difficult to solder, since the heat is drained away from the iron too quickly; or, parts already soldered on become unsoldered when attempts are made to solder-on another item. Brass tube also has a poor machinability, although it files quite easily. However, in its hard rolled form, brass sheet is easy to work with and its cheap and easy acquisition make it an acceptable material even though it requires considerable skill to solder and machine. Due to

the soft oxide that forms on brass, paint and adhesives do not stick very well, although the use of etch primers improves this property.

Brass Rod or Bar 62% Cu, 35% Zn,
3% Pb (typical)

Brass rod and bar is cast rather than rolled or extruded, and is known as 'free machining brass'. Its machinability is excellent, but its solderability is equally as bad as brass sheet. However, its easy acquisition makes it the most commonly used material for machined fittings. Brass has a relatively high coefficient of friction and therefore if its yellow colour can be tolerated, it is a good material for traction tyres. Brass rod and bar is as equally poor to paint as brass sheet.

Cast Iron 96% Fe, 4% C

The free carbon as graphite in cast iron and its good machinability make it an excellent bearing material where the load on the bearings is low as in live steam cylinders and piston rings. Cast iron is much softer than steel, very brittle, strong in compression, but weak in tension. Where strength is of little importance, cast iron is extensively used in cast components due to its cheapness. However, cast iron rusts very readily and is a dirty material to work with.

Copper 100% Cu

Copper is an almost useless material for the small scale modeller due to its softness, weakness, and extremely high conductivity of heat making it difficult to solder. For the live steam modeller, copper is the best material to use for boilers since it has a great resistance to corrosion, particularly when it is hot. Copper is a very good electrical conductor and makes very good electrical contact with itself as in wiping contacts. However, its lack of springiness makes copper useless for sprung pick-ups.

Duralumin 96% Al, 4% Cu
(typical)

Aluminium alloy, commonly called duralumin, is about four times as strong as aluminium itself, and is therefore

quite a useful material. It cannot be soft soldered, but it has very good machinability and corrosion resistance, and its white colour makes it an acceptable substitute for steel, where the approximate colour of steel needs to be retained. Duralumin has a relatively high coefficient of friction, similar to that of brass, so it makes quite a good material for traction tyres.

Gun Metal 85% Cu, 5% Zn, 5% Sn,
5% Pb (typical)

Its excellent machinability and comparatively low conductivity of heat (12% Cu) makes gun metal the best material to use for machined fittings that need to be soldered on. Also, it makes a very good bearing material for use with steel journals. It is easy to cast and most live steam castings which are loosely said to be brass, are in fact gun metal.

High Speed Steel 76.3% Fe, 18% W,
4% Cr, 1% V,
0.7% C#

The best drills are made from high speed steel which is an extremely hard and stiff metal. Small (broken) drills come in handy for use as piston or other rodding where strength and rigidity is called for. High speed steel can only be soft soldered with the aid of a phosphoric acid flux, and even then it is very difficult. This metal can only be cut by grinding, for it cannot be annealed by normal means. High speed steel is often wrongly referred to as 'tool steel' which is revised later.

Lead 100% Pb

Lead is extremely soft and weak, and has no use in modelling except for weighting. Its low melting point of 327°C makes it easy to cast, and at 11.3 gm/cc is the heaviest of all common metals.

Mazak 95% Zn, 4% Al, 1% Cu
(typical)

Mazak is encountered as a die casting alloy. It is a dreadful material to drill and tap and its only useful characteristic, apart from die casting properties, is that it has a high co

efficient of friction, and therefore makes an excellent traction tyre. Many manufacturers use Mazak for wheels and such wheels have a bad reputation for picking up dirt. However, like aluminium, this only happens when sparking is allowed to occur. As when an electrically driven locomotive does not have enough pick-ups.

Mild Steel 99.8% Fe, 0.2% C#

The ease with which mild steel rusts makes it an undesirable modelling material, except where it is used to give the appearance of the real thing, like in coupling rods. Also it is relatively difficult to solder, except with an acidic flux which compounds the rusting problem. When coated with tin in the form of tin plate, these objections are eliminated. But an additional disadvantage of mild steel is that it is ferromagnetic which can cause the magnet of nearby electric motors to become weakened. Mild steel is a good material for a traction tyre, although it makes very poor electrical contact.

Nickel Silver 65% Cu, 18% Ni,
17% Zn (typical)

Nickel silver is just about the ideal sheet metal material for modelling purposes. Solder takes to it very readily and with a conductivity of heat of only 6% Cu, even very low wattage irons can be used without trouble. In its hard rolled form it is very stiff, springy and comparatively hard, yet is relatively easy to file. However when annealed, it becomes as soft as annealed copper. All leading modellers swear by nickel silver sheet, but it is difficult to obtain in small quantities in Australia. The only model shop known by the author to stock it is Keith Hudson's Modellers' World of Sydney. However, it can be obtained from many UK model shops by mail order. A thickness of 0.3 mm is recommended. In rod form, nickel silver is difficult to machine, and it has a low coefficient

of friction, making it an undesirable material for traction tyres. However, it makes excellent electrical contact even if its electrical conductivity is quite low at 6% Cu. Nickel silver exhibits very little tarnishing and has a slightly yellowy white appearance making it an acceptable substitute for steel such as with rails, coupling rods and valve gear. Paint sticks to nickel silver moderately well, better than brass but not as well as stainless steel. Etch primers help.

Phosphor Bronze 95% Cu, 5% Sn,
less than 0.1% P

Phosphor bronze has similar properties to nickel silver, but it is a little more difficult to file and solder. Its outstanding property is its springiness, and together with the fact that it makes good electrical contact, it is the ideal material for sprung electrical pick-ups. Phosphor bronze is moderately difficult to machine, but it does make an excellent bearing material for steel journals. Paint sticks poorly to phosphor bronze although etch primers help.

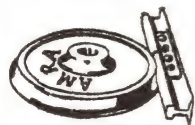
Piano Wire 98.7% Fe, 0.8% C#,
0.3% Mn, 0.2% Si

Piano wire is a very hard stiff and springy metal. It is relatively resistant to rust and therefore makes the ideal material for modelling hand rails and delicate pipe work that can be damaged easily with handling. Piano wire is moderately difficult to solder, but is helped greatly in this respect with the use of an acidic flux.

Silver Steel 99% Fe, 1% C#

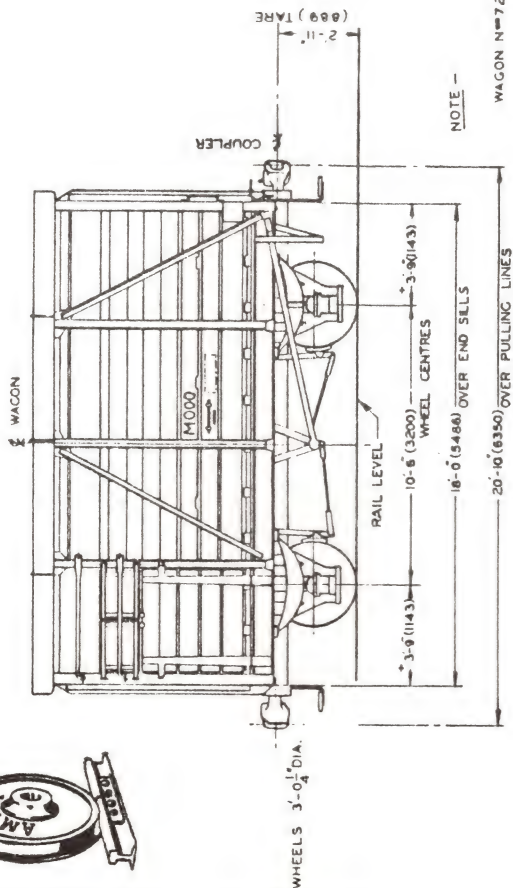
Silver steel is a very hard material and therefore has good wear resisting properties. It is difficult to machine and hard to file, but is used almost exclusively for axles and other rotating parts. When heated to red heat and then quenched quickly in water or oil, it becomes so hard that it cannot be machined or filed. Thus in its hardened state, it can be used for

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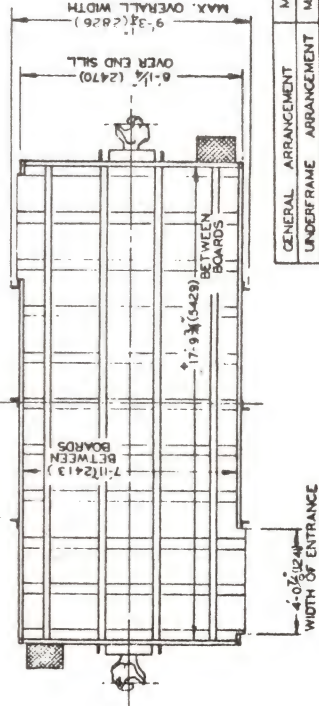
M-5

27.6-75.



NOTE -

WAGON N° 720-779 HAVE STANDARD BRAKE EQUIPMENT TO DRG. M1



METRIC EQUIVALENT IN BRACKETS.		
VICTORIAN RAILWAYS		
CLASS	M	
CATTLE WAGON		

GENERAL ARRANGEMENT		M.E
UNDERFRAME ARRANGEMENT	M2	
JOURNALS	9" 4 1/2" & 8" 4 1/2"	
CAPACITY	10 TONS (10.16 TONNES)	
TARE WEIGHT	9 TONS. 1 CWT. (8.14 TONNES)	
BRAKE CYLINDER	8" DIA = 12" STROKE COMB.	
BRAKE % AIR	89.72 % TARE	42.50 % LOAD
BRAKE % HAND	28.00 % TARE	

WAGONS BUILT AT NEWPORT 1952 / 53

WAGON N° 720-779

WAGON N° 780-879

form tools or other special hand made cutting tools.

Solder 50% Pb, 50% Sn
(typical)

Apart from use as a solder, this alloy is useful in that its grey appearance resembles steel and with the skilled use of a soldering iron, items made from brass and other red or yellow metals can be plated and thus made to have a steel like appearance. Melting point of solder is 216°C , and electrical conductivity 11% Cu.

Spring Steel 98% Fe, 1% Mn, 1% C*

As its name implies, spring steel is ideal for use whenever spring is required. However, it makes very poor electrical contact, and on its own is very poor for sprung electrical pick-ups. Its use in this respect can be greatly improved if copper or nickel silver is soldered on to the actual contact areas.

Stainless Steel 70% Fe, 20% Cr,
10% Ni (typical)

Stainless steel is similar to nickel silver in many ways, except that it is harder to file and almost impossible to solder with resin flux. If phosphoric acid is used as a flux and the surfaces well cleaned, it becomes very easy to solder and what is more, a stronger solder bond is made and therefore it is good to use for delicate bits and pieces that might get knocked off. Like aluminium, a very hard tenacious oxide is formed on stainless steel and this allows paint to stick very well indeed. Etch primers should be avoided for they will not etch stainless steel and will worsen the adherence of the paint. Stainless steel is a poor conductor, both of heat (6% Cu) and electricity (3% Cu), but makes good electrical contacts for modelling purposes.

Tool Steel 87% Fe, 7% Cr, 4% W,
1% V, 0.6% C*, 0.4% Mn

Tool steel is more sophisticated and expensive equivalent of silver steel. Tool steel can be machined in its annealed condition and then hardened by heating to red heat and quenching quickly in water or oil. In all respects

tool steel has better mechanical properties than silver steel, is very resistant to rusting, and therefore is the ideal metal for making special forming and cutting tools.

White Metal 51% Sn, 33% Pb, 13% Sb,
3% Cu (typical)

With a melting point of 240°C , white metal can be cast into silastic rubber moulds and is encountered in cast metal parts in rolling stock kits and accessories. As a metal to work with, it has nothing to recommend it, for it is soft, brittle and dreadful to file.

Woods Metal 50% Bi, 25% Pb, 13% Sn,
12% Cd

Also called 'Cerobend', woods metal is as dreadful as white metal to work with, but with a density of 9.6 gm/cc, it is almost as heavy as lead, and with a melting point of only 70°C , it is excellent for adding weight into inaccessible places in locomotives. However, its very low melting point can be a disadvantage, but if it is mixed about 50/50 with lead, its melting point can be raised to about 105°C , and the extra lead makes it an even better weighting material. Either on its own, or mixed with ordinary solder, woods metal can be used as a low melting point solder for white metal kits.

CONCLUSION

For general use in modelling, the following metals are recommended:

- 1 Sheet metal work: Nickel silver (highly recommended); Phosphor bronze; with brass just being acceptable.
- 2 Machined parts: Gun metal (highly recommended); free machining brass.
- 3 Hand rails and pipe work: Piano wire (highly recommended); Nickel silver.
- 4 Electrical pick-ups: Phosphor bronze (highly recommended); Nickel silver.
- 5 Rail: Nickel silver (highly recommended).
- 6 Delicate details: Stainless steel; Nickel silver.
- 7 Rods and valve gear: Stainless

steel; Nickel silver.

8 Traction tyres: Mazak; Brass; Duralumin.

9 Non-traction tyres: Nickel silver; Stainless steel.

10 Rubbing electrical connections: Nickel silver; Copper.

It is hoped that this article has

been informative and will be useful to keep as a reference. The author would like to hear comments via 'Pop Valve' as to its worth. If favourable, other similar articles could be written, but as a great deal of time and research is required in their preparation, no feedback - no more articles.

ELECTROMAGNETIC Uncoupler

by Ken Down

After experimenting with two or three designs, I finally found a very simple way to build my uncoupler. I had some two inch wide steel strip in my scrap heap, so I cut two lengths long enough to reach the level of the track after passing through the track bed, plus enough to have two relay coils underneath, plus enough to make the kink that is shown in Figure 1. The two coils were not ex PMG, but smaller for another type of relay. They were wound on a plastic spool that had a hollow in the centre for which I turned a mild steel core, and at each side it was turned to thread it $\frac{3}{16}$ " whitworth (Figure 2) on which the clamping nuts were screwed to hold the plates hard against the core faces (Figure 3). Make enough thread to take two right angle brackets of aluminium and to screw it in place under the track bed. These need only be $\frac{3}{8}$ " wide strips and placed diagonally opposite on the set up.

After clamping all the parts together with the $\frac{3}{16}$ " W nuts, I wired the two 200 ohm coils in parallel so that the two finished up as 100 ohms. The tops of the plates were adjusted to be $\frac{7}{16}$ " apart on the outsides. You can make the plates any length to suit the thickness of your track bed, plus the height of the track, so that the tops are the same level as the track. Bend the brackets to keep the uncoupler in this

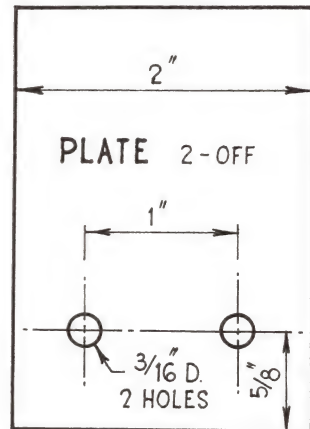


FIG. 1

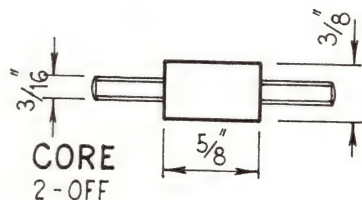


FIG. 2

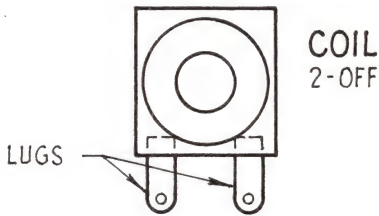


FIG. 3

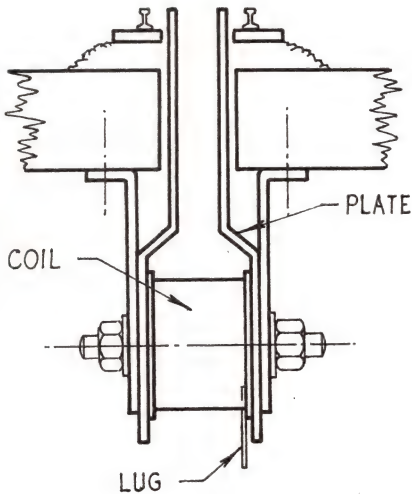


FIG. 4

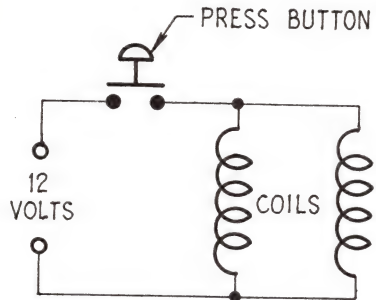
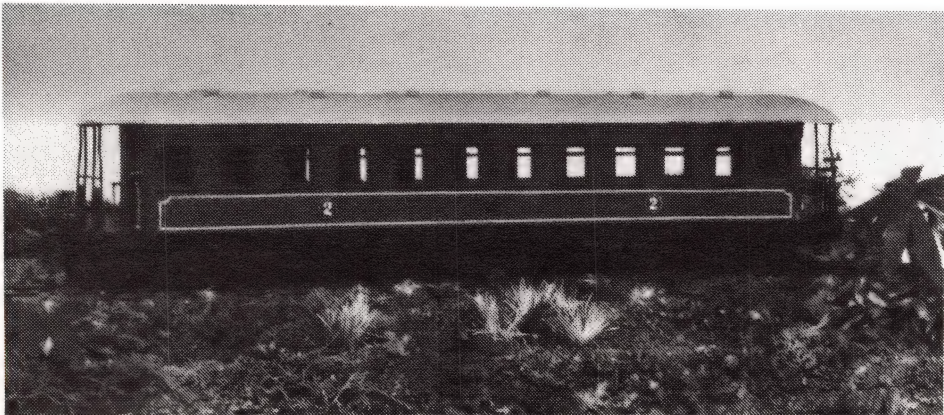


FIG. 5

position (Figure 4). I find that you can have 12 volts through the coils for quite a long time before you can even feel any sign of warming the coils.

The set is quite good for either Kadee or Rivarossi couplers; the two snap to uncouple quite well. You can place the uncoupler any place in your yard and operate with a press button on your switchboard (see Figure 5). Cut the sleepers on your track inside the chairs and leave them there because it looks better.



EUDLO

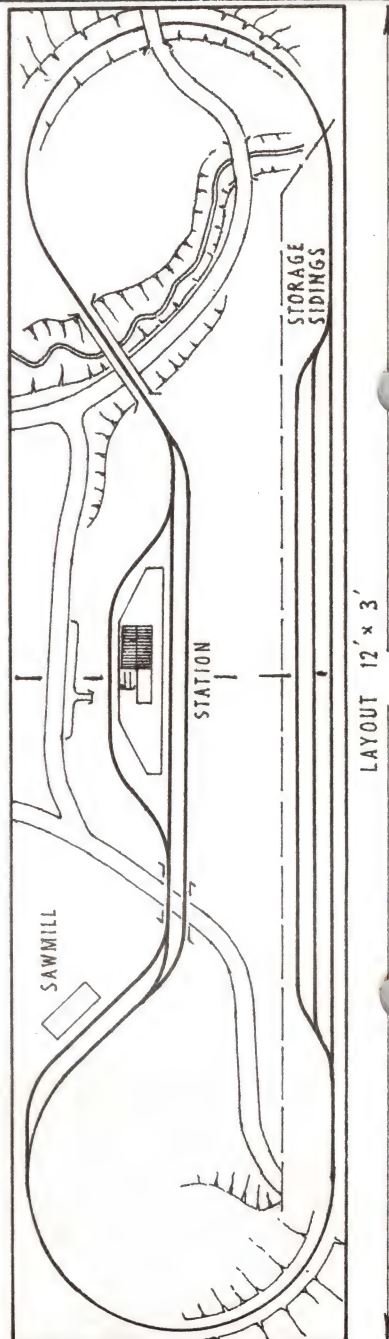
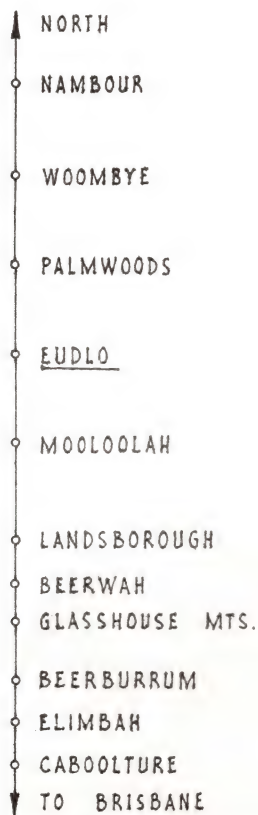
by Geoff Perkins

This proposed layout is based on Eudlo Station, north coast line, QR scale TTn3½, 1:120, 9 mm gauge.

I propose to construct it on two sheets of 2" coolite, each 6' x 3', braced with 4" deep masonite around edges and 2" masonite underneath. Very light, quite strong enough, extremely portable.

To feature timetable running and correctly interlocked signalling and points.

Trains are scratch built, representative of QR north coast line workings of mid 1960s.



BAY CONVENTION

EASTER 1981

by R Thomas

More than one hundred Model Railway enthusiasts, their ladies and families, gathered at the Victoria Hotel in Melbourne over Easter 1981 to share their knowledge of - pick each others' brains about - be stimulated by contacts with kindred spirits in - further the art and craft of - railway modelling, or any other good reason you can think of.

The members were made up of visitors from New Zealand and interstate (every State except the Northern Territory) as well as from the local scene, and the consensus of the Convention was that it should not be a one-off production.

Activities were many and varied - clinics were conducted on Scenery Creation (Ray (Barney) Brownbill), Layout Planning (Phil Knife), Painting Backscenes (Col Waddington), Care and Maintenance of Locomotives (John Hamilton), Construction and Detailing of Commercial Kits (Doug Kelly), Painting and Lettering Models (John Hamilton), Scratch Building Locomotives (Peter Betts), Australian Prototype (Norm Cave), Timetable Operation (Jack McLean), METROL (Melbourne Metropolitan Train Control Centre) (Kevin Hurley).

A series of workshops operated on Saturday evening - Handmade Pointwork (Roger Lloyd), Making Trees (David Morrison), Electronics (Ian Weickhardt), Working with Metals (Gordon Duncan), Painting Backscenes (Col Waddington).

The A.R.H.S. Film Group provided films with a railway bias, and Saturday and Sunday were spent touring the metropolis, visiting layouts, the Puffing Billy Tourist Railway (Belgrave to Lakeside), the A.R.H.S. Museum, the Diamond Valley Railway, and other places of railway interest.

Layouts on display were those of A.M.R.A. Victorian Branch, Melbourne Model Railway Society, Victorian Model Railway Society, Marmion, Wessex

Group (Castle Hill Lines), Mark Linhart (Little River Road), Frank Sheeran, Ray (Barney) Brownbill (Wild Creek R.R.), David Morrison (N and P Railway), Harry Bender, Stuart Westerman (Mousehaven Railway Company), Branchline (Kingfield, Twinlakes and Main Branchline Railroad).

Sunday night saw us wined and dined at the Convention Dinner, and entertained by Alan Rowe with his railway sounds and stories.

Monday was a sort of wind-down, some visited layouts they had been unable to cover on the regular schedule, and other points of interest. Many small groups sat around the coffee urn talking of what had been, or what should have been, and that was it.

A secret auction operated during the Convention, and, of course, there was a modelling competition. The results were as follows:

Scratch Built Locomotive:

Jim Harwood - Rogers K Class 4-4-0 (New Zealand Railways)

Scratch Built Passenger Rolling Stock:

Peter Betts - Six wheel Brake/Third (L.S.W.R.)

Scratch Built Goods Rolling Stock:

David Morrison - BCH Coal Hopper (N.S.W.G.R.)

Kit/Kit Modified:

Warren Stirling - P Hopper Wagon (New Zealand Railways)

Lineside Structure:

Peter Betts - Signal Bracket (L.S.W.R.)
The pity is that we do not have photographs of these magnificent models.

Organisation is now under way for the Port Phillip Model Railway Convention, from 10 to 13 June 1983, to be held in Melbourne (St Kilda).



FOR
READERS LETTERS

The Editor
AMRA Journal
Dear Rex

I think that a sheet like the Members' Information Sheet should be sent out with every Journal - it might prompt members to contribute more to the Association, especially if the information is published in Journal.

Geoff Perkins

The Editor
AMRA Journal
Dear Rex

Thank you for the opportunity to comment on Ted Thoday's letter. Generally I am in full agreement. The name of the game is communication. AMRA had more communication in the early days (when we had fewer members) when a "Buyers' Guide" was published and distributed once a month to all members. Frankly, as a communications medium, 'Journal' is a dead loss. If AMRA cannot afford either the time or finance, or both, publication should be stopped.

Ted's suggestion of a bi-monthly newsletter is better than my suggestion of a bi-monthly Journal. This latter should be scrubbed immediately, and

production of Journal cease forthwith. All articles on hand should be either returned to the originator, or if no objection is forthcoming, handed over to AMRM.

I would go further and recommend that AMRA should then issue a monthly newsletter to keep AMRA members INFORMED of what is happening in the Association, all over this country. Information in this newsletter should be restricted to the items contained in Ted's recommendations for the Federal Committee's functions, particularly paragraphs 4, 5, 6, 7 and 8.

Such a newsletter should be duplicated - we have the necessary expertise in typing and editing, and stencil duplicating is not hard, so, as well as saving money all the way to the bank, we could also have the far better advantage of providing up-to-date information to AMRA members.

Kind regards
Tim Dunlop

BRANCH NOTES

WESTERN AUSTRALIAN BRANCH NOTES



WESTERN AUSTRALIAN BRANCH NOTES

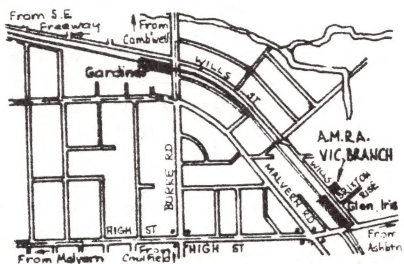
Here we are again - trying to drum up enthusiasm for the 1982 Exhibition. You might say 'Gosh, it's not on until the last weekend in October' - and you would be right! It's not on until then, but unless the planning starts about now, there may not be an Exhibition at all.

At this stage we need to ferret out all those wonderful layouts that our

members, or indeed any Model Railway enthusiasts, have been building over the summer months, or have built in the past year or so, and which have not yet been seen by the public at large.

The Club's '00' gauge layout, Halt-whistle-on-Tyne, is now fully operational in the Clubrooms, and should be available for operation at most Club meetings. The Branch Committee is considering the purchase of more Club owned rolling stock so that a collection of suitable equipment will be available for operation at exhibitions and layout operating sessions.

VICTORIAN BRANCH NOTES



General meetings are held on the second Thursday each month, commencing at 8 pm at the Clubrooms, 92 Wills Street, Glen Iris. The Clubrooms are open from 7.30 pm on these nights for operation of your HO or N gauge trains on the club layout. Working bees with operation on the club layouts are held on Tuesday nights, with the exception of the Tuesday night before the general meeting.

ON THE COVER

Goldsworthy Mining Ltd's English Electric Loco No 3 passing through the lush growth in the vicinity of Goldsworthy Township, making a pleasant change to the dry Spinifex bushes encountered elsewhere along the line.

Photo by Neil D White
July 1978

Hints, Tips and Queries

DID YOU KNOW? PART 2

by Gordon Duncan

That flicking the reversing switch on your control panel without stopping your loco first produces, roughly, the same effect as putting your car into reverse when you are doing 40 mph forward?

That you can produce the appearance of old, weathered wood on balsa and basswood by staining it with a solution of two or three drops of Indian Ink in half a cup of water? Let it dry and if it isn't dark enough, give it another coat or two - don't make all the boards the same!!

That you can make traction tyres that work quite well by cutting slices off appropriately sized PVC tubing? This stuff will stretch quite a lot if soaked in hot water first.

That abrasive grains, particularly aluminium oxide, make good 'coal' or 'coke'? Alter the colour with spray or brush if you like. See your local friendly dealer in abrasives - not the local hardware store, he probably won't know what you mean.

That a two inch length of 1" x 1" aluminium tee section extrusion makes a very convenient sanding block for modelling purposes?

That MEKP - methyl-ethyl-ketone-peroxide - the catalyst used for 'Plasti-bond' and most casting and embedding resins - is extremely dangerous, particularly to the eyes? Use with care and keep it off your fingers, keep containers tightly closed and, above all, away from children.

That the aluminium foil containers used for 'Party Pies' make good disposable containers for small quantities of paint, glue or 'what-have-you'? Cut them apart with scissors and throw away when finished with. Saves having large containers to evaporate.

That a woodscrew rubbed with paraffin wax (or even soap) will go in with half the effort? Essential when putting wood screws into plastic wall plugs. Very good for sticking drawers too!

That you should keep your saw and/or drill well lubricated when working with aluminium? Paraffin wax, lard, or, again, even soap will do the job, but the best is the special lubricant supplied by tool merchants.

That cleaner holes can be made in aluminium sheet by punching rather than drilling where possible?

That only a new, or nearly new, file really cuts well on brass? Start a new file or brass and keep a couple for that purpose only - if possible.

That you should NEVER hold sheet metal, thin strips, etc, with your fingers when using a power drill? Use pliers or 'vice grips' if you can't use a vice! If the drill catches when it breaks through - and it often does - your fingers can suffer badly.

That you will ruin ordinaly pliers or cutters if you try to cut piano wire with them? Use only cutters marked 'For Piano Trade' or nick with a file or abrasive disc and break off.

That you should avoid dipping your soldering iron into liquid flux as much

as possible? It tends to corrode the untinned portion and dirties the flux as well. A wet cloth or sponge to wipe your hot iron on before you apply it to the joint will keep your iron clean.

That twigs cut off garden bushes, etc, de-barked and allowed to dry out, make excellent logs for your lumber mill or timber truck? After all, what could be more like timber than timber?

That small plastic pill, etc, containers make excellent formers for water tanks when covered with corrugated aluminium?

That offcuts of plumbers PVC drain pipes make very good silo tanks, etc? If you have a lathe you can simulate horizontal and vertical plate joins very easily. Try them for oil tanks too.

That you can make domed ends for tank cars or tops for oil tanks quite easily by using the bottom of a suitably sized spray can as a former? Stand the tank tube upright on the bottom of the spray can, mix up some 'Plasticbond', thinned to pour with thinners supplied by the same people, pour it into the tube, put a weight on top to hold the tube in place till the 'Plasticbond' hardens - remove and trim if required and you have a domed end or top.

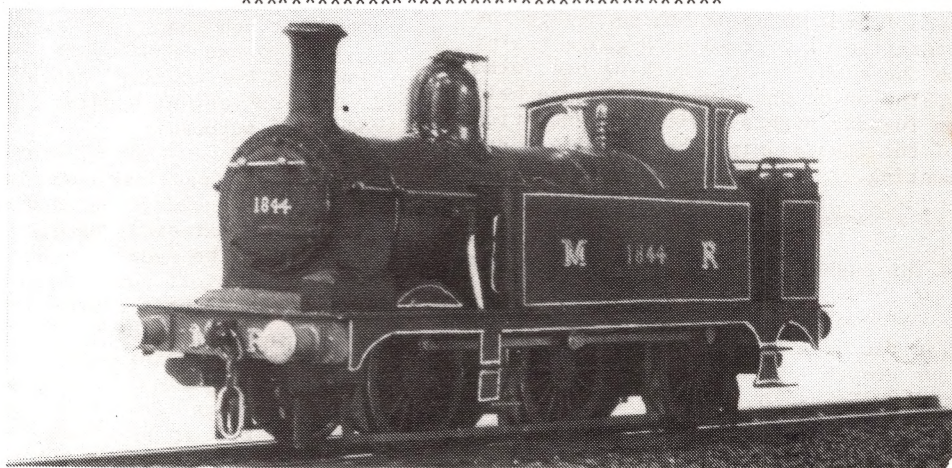


Photo 3 FIRST - KEN EDWARDS CUP, KIT BUILT LOCOMOTIVE
Peter Betts' MR Johnson 1F class 0-6-0 loco in OO scale